

Appl. No. 10/056,958
Amdt. Dated Sept. 25, 2003
Reply to Office Action of 07/25/2003

AMENDMENTS TO THE CLAIMS

Claim 1 (Currently Amended) A temperature controlled structure for an oscillator device, comprising:
a package enclosure having a top, a floor, and side walls, and wherein at least one pin extends from said package;
a thermal conductive substrate housed within said package enclosure;
a resonator mounted to said thermal conductive substrate;
at least one insulating structure securing said thermal conductive substrate;
a second substrate ~~disposed between said thermal conductive substrate and~~ affixed to said floor, said second substrate having at least one component; and
at least one interconnect electrically connecting said thermal conductive substrate with said second substrate and with said at least one pin.

Claim 2(Original) The temperature controlled structure according to claim 1, wherein said resonator is a surface acoustical wave device and directly bonded to said thermal conductive substrate.

Claim 3(Original) The temperature controlled structure according to claim 1, wherein said resonator is a bulk acoustical wave device and secured by a plurality of clips extending from said thermal conductive substrate.

Claim 4(Original) The temperature controlled structure according to claim 1, further comprising a heater device, temperature sensor and temperature control circuitry.

Claim 5(Currently Amended) The temperature controlled structure according to claim 1, further comprising at least one additional substrate layer disposed between said second substrate and said thermal conductive substrate.

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Claim 6(Original) The temperature controlled structure according to claim 1, wherein said package is vacuum evacuated.

Claim 7(Original) The temperature controlled structure according to claim 1, wherein said thermal conductive substrate and said second substrate are ceramic.

Claim 8(Original) The temperature controlled structure according to claim 1, wherein said insulating structures are glass posts.

Claim 9(Previously Presented) The temperature controlled structure according to claim 1, further comprising a temperature hood covering said thermal conductive substrate.

Claim 10 (Currently Amended) A temperature controlled package for an oscillator, comprising:

~~A device~~ a device enclosure having a top, a floor, and side walls, and wherein at least one pin extends from said package, wherein said device enclosure is evacuated;

a thermal conductive substrate housed within said device enclosure;

a surface acoustical wave device directly bonded to said thermal conductive substrate;

at least one insulating post securing said thermal conductive substrate;

a second substrate level ~~disposed between~~ secured to said floor ~~and said thermal conductive substrate~~ by at least one insulating structure wherein said second substrate level houses at least one component;

a temperature controller for maintaining an internal temperature above an ambient temperature, wherein said controller uses at least one temperature sensor and at least one heater to maintain said internal temperature; and

at least one interconnect electrically connecting said thermal conductive substrate to said at least one pin and said second substrate level.

Claim 11(Canceled)

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Claim 12(Currently Amended) The temperature controlled package for an oscillator according to claim 10, further comprising at least one additional substrate level disposed between said ~~floor~~ second substrate and said thermal conductive substrate.

Claim 13(Previously Presented) The temperature controlled package for an oscillator according to claim 12, wherein said at least one component is mounted to said at least one additional substrate level.

Claim 14(Previously Presented) The temperature controlled package for an oscillator according to claim 10, further comprising a temperature hood covering said thermal conductive substrate.

Claim 15(Previously Presented) A resonator package with thermal control, comprising:
a device enclosure having a top, a floor, and side walls, and wherein at least one pin extends from said enclosure;
a thermal conductive substrate having a plurality of temperature sensitive components mounted to said thermal conductive substrate;
a plurality of insulating posts securing said thermal conductive substrate;
a second substrate affixed to an interior surface of said floor of said device enclosure, with a plurality of temperature insensitive components mounted to said second substrate;
at least one second substrate interconnect electrically connecting said second substrate with said at least one pin extending from said device enclosure;
at least one thermal conductive substrate interconnect electrically connecting said thermal conductive substrate to said at least one pin extending from said device enclosure; and
a section of printed circuit board, wherein said at least one pin is electrically connected with said printed circuit board and wherein said device enclosure is physically mated with said printed circuit board.

Claim 16(Original) The resonator package with thermal control according to claim 15, wherein said resonator package is a surface mount device.

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Claim 17(Previously Presented) The resonator package with thermal control according to claim 15, further comprising at least one interconnect electrically connecting said thermal conductive substrate with said second substrate.

Claim 18(Previously Presented) The resonator package with thermal control according to claim 15, further comprising a temperature hood covering said temperature sensitive components on said thermal conductive substrate.

Claim 19(Original) The resonator package with thermal control according to claim 15, wherein one of said temperature sensitive components is a surface acoustical wave device directly bonded to said thermal conductive substrate.

Claim 20(Original)The resonator package with thermal control according to claim 15, wherein one of said temperature sensitive components is a bulk acoustical wave device secured by a plurality of clips to said thermal conductive substrate.

Claim 21 (Previously Presented) The temperature controlled structure according to claim 9, further comprising at least one temperature sensitive component on said thermal conductive substrate and covered by said temperature hood.

Claim 22 (Currently Amended) The temperature controlled structure according to claim 1, wherein said at least one component is chosen from the group of components comprising consisting of: ~~controller electronics and processing circuitry~~ PI controller, heater, differential amplifier, and output amplifier.

Claim 23 (Canceled)

Claim 24 (Canceled)